



Spreading Germs:

**Low Rates of Flu Vaccination Among
California Healthcare Workers
Put Patients at Risk**

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Introduction

Vaccination of healthcare workers (HCW) against influenza (flu) is an important practice in the prevention of hospital-acquired flu and in the control and prevention of flu epidemics.¹ The spread of influenza in healthcare settings is viewed as a “serious patient safety issue” because HCW can transmit this virus to vulnerable patients, causing serious injury and death.² HCW are given priority access to the vaccine, and the Centers for Disease Control and Prevention (CDC) has recommended vaccination of HCW with direct patient contact since the early 1980s and for all HCW since 1993.^{3,4} Beginning in 2008, the California Department of Public Health (CDPH or “the Department”) was required to publish each hospital’s vaccination rate, but it has failed to do so.⁵ However, Consumers Union’s Safe Patient Project obtained the hospital-specific data through a Public Records Act Request.⁶ It suggests that vaccination rates are very low, many hospitals are not reporting as required, and the CDPH has failed to demonstrate diligence in ensuring that accurate, timely information is submitted by hospitals and disclosed to the public.

¹ The US Department of Health and Human Services defines healthcare workers or “healthcare personnel” as “all paid and unpaid persons working in health-care settings who have the potential for exposure to patients and/or to infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. HCP might include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, and persons (e.g., clerical, dietary, house-keeping, laundry, security, maintenance, billing, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from HCP and patients.” Definition of Healthcare Personnel, March 2008.

<<http://www.hhs.gov/ophs/programs/initiatives/vacctoolkit/definition.html>>

² Poland, G et al. “Requiring influenza vaccinations for health care workers: seven truths we must accept.” *Vaccine* 23 (2005): 2251-2255.

³ King, WD. “Brief Report: Influenza Vaccination and Health Care Workers in the United States.” *J Gen Int Med* 21 (2006): 181-184 <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1484661/>>.

⁴ Talbot, T et al. Society for Healthcare Epidemiology of America (SHEA) Position Paper. “Influenza Vaccination of Healthcare Workers and Vaccine Allocation for Healthcare workers during vaccine shortages.” *Infection Control and Hospital Epidemiology* 26 (2005): 882-890.

⁵ SB 739. Speier. 2006. <http://info.sen.ca.gov/pub/05-06/bill/sen/sb_0701-0750/sb_739_bill_20060928_chaptered.html>, establishing Sections 1288.7 (a) and 1288.8 (b) of the California Health and Safety Code <<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=01001-02000&file=1288.45-1288.9>>.

⁶ Consumers Union Public Records Act Request. February 16, 2010. <<http://www.safepatientproject.org/pdf/CU%20February%2016%202010%20PRA.pdf>>

Hospital Worker Influenza Vaccination Rates 2008-2009: Key Findings

According to the Department 299 hospitals or 69% of the 432 licensed general acute facilities in California reported healthcare worker vaccination data.⁷ Data was not received for 136 hospitals or 31% of the licensed general acute care facilities in the state.⁸ Based on 246 reports provided by the Department of Public Health, Consumers Union's Safe Patient Project found that:

- The average vaccination rate among reporting hospitals was 52.4%.
- 3.3% had vaccination rates of less than 25%.
- 67.9% had vaccination rates of less than 60%, the 2010 target rate set by the US Department of Health and Human Services.
- 32.1% had vaccination rates greater than 60%.
- 1.6% had vaccination rates greater than 80%, the rate suggested by some experts as necessary to prevent in-hospital transmission.⁹

Background

Influenza causes 36,000 deaths and 226,000 hospitalizations annually in the United States. Flu infection rates range from 7% among working-age adults to 20% among children under five years old. Annual flu epidemics account for 3.1 million days of hospitalization and 31.4 million outpatient visits. Direct medical costs in the U.S. average between \$3 billion and \$10.4 billion annually.¹⁰

Influenza viruses are transmitted from person to person primarily through contact with infected respiratory secretions, especially airborne droplets generated by coughing and sneezing.¹¹ Transmission occurs with close contact, creating the possibility of spread between patients and healthcare workers. Outbreaks of hospital-acquired influenza have been shown to

⁷ According to both the data obtained by Consumers Union and the Department's consumer information web-portal, the Health Facilities Consumer Information System (HFCIS), there are 432 licensed general acute care facilities. The Department has communicated to CU that several of these facilities are under consolidated licenses, but it was unclear which ones reported in this manner and there was no decision made by the Department on whether these facilities were allowed to report a combined rate.

⁸ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009" May 27, 2010. <<http://www.cdph.ca.gov/services/boards/Documents/FluVaxpresentationMay26i.pptm>>. Slide 29.

⁹ Salgado, C. "Preventing Nosocomial Influenza by Improving the Vaccine Acceptance Rate of Clinicians." *Infection Control and Hospital Epidemiology* 25 (2004):923-928. <<http://www.journals.uchicago.edu/doi/abs/10.1086/502321>>

¹⁰ Molinari, NA et al. "The annual impact of seasonal influenza in the US: Measuring disease burden and costs." *Vaccine* 25 (2007): 5086-1096. <<http://download.thelancet.com/flatcontentassets/H1N1-flu/epidemiology/epidemiology-14.pdf>>

occur in all hospital wards and units including transplant, oncology, and emergency departments.¹² The median death rate during hospital-acquired flu outbreaks has been reported at 16%, with an average additional cost of \$7,500 per case.¹³ The World Health Organization defines outbreaks as “unusual or unexpected increases of cases of a known hospital-acquired infection or the emergence of cases of a new infection.”¹⁴

Vaccination of Healthcare Workers against the Flu

Studies of blood samples found that between 14% and 23% of healthcare workers had evidence of infection during flu season.^{15, 16} In one of these studies, workers who had received the influenza vaccine reduced their rate of infection by 88% and days of absence by about half.¹⁷ Of equal concern is the rate of undetected flu and people working while they have the flu. In one study, 59% of HCW who had evidence of influenza did not know they were infected.¹⁸ Other studies found that as many as 76% of HCW have worked despite having a flu-like illness and worked an average of 2.5 days while ill.¹⁹ Furthermore, the virus can be spread to others a day before symptoms appear.²⁰

Studies have demonstrated a significant relationship between vaccination rates among HCW and the rate of healthcare-acquired flu among patients.²¹ In one study that tracked influenza vaccination and infection rates between 1987 and 2000 at the University of Virginia Health System, as HCW compliance with flu vaccination increased from 4% to 67%, the

¹¹ Centers for Disease Control. “Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season” <<http://www.cdc.gov/H1N1flu/recommendations.htm>>

¹² Talbot.

¹³ Salgado, C. et al. “Influenza in the acute hospital setting.” *Lancet Infectious Diseases* 2 (2002): 145-155. p. 147

¹⁴ World Health Organization. “Prevention of Hospital-Acquired Infections: a Practical Guide”

<<http://www.who.int/entity/csr/resources/publications/drugresist/en/whodscsreph200212.pdf>> p. 26

¹⁵ Wilde, J et al. “Effectiveness of Influenza Vaccine in Health Care Professionals” *JAMA* 281 (1999): 908-913. <<http://jama.ama-assn.org/cgi/content/full/281/10/908>>

¹⁶ Elder, A et al. “Incidence and recall of influenza in a cohort of Glasgow healthcare workers during the 1993-4 epidemic: results of serum testing and questionnaire.” *BMJ* 313 (1996): 1241-1242 <<http://www.bmj.com/cgi/content/full/313/7067/1241?view=long&pmid=8939114>>.

¹⁷ Wilde.

¹⁸ Elder.

¹⁹ Talbot.

²⁰ Centers for Disease Control. “Updated Interim Recommendations for the use of antiviral medications in the treatment and prevention of influenza: 2009-2010” <<http://www.cdc.gov/H1N1flu/recommendations.htm>>

²¹ Pearson, M. et al. “Influenza Vaccination of Health-Care Personnel: Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP).” *CDC MMWR* 55 (February 24, 2006): 1-16 <<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm>>

proportion of flu cases that were hospital-acquired went from 32% to zero.²² Another study at 20 long-term care hospitals found that without vaccination of HCW, 20% of total patient deaths were caused by influenza, but with vaccination of HCW, zero deaths were caused by influenza.²³

The three major professional organizations for healthcare epidemiologists and infection preventionists have endorsed mandatory vaccination of healthcare workers. The Society for Healthcare Epidemiology of America just this week announced their support for mandatory vaccination of healthcare professionals in all health care settings as a condition of hiring and continued employment, including contract workers, students and volunteers.²⁴

Current Rate of Influenza Vaccination of Healthcare Workers is Low

The overall rate of healthcare worker vaccination has been reported at around 40% nationally according to data from national surveys in 2000 and 2005.^{25, 26} However, a literature review spanning several decades found a wide range of rates, from less than 5% to 80%.²⁷ This same review found that misconceptions among healthcare workers about the risks and benefits of vaccination, inconvenient timing and location of vaccination programs, and fear of injections were the main reasons they do not get the vaccine. Some studies suggest that a vaccination rate of at least 80% is necessary to prevent in-hospital transmission.²⁸ The U.S. Department of Health and Human Service's "Healthy People 2010" campaign set a target flu vaccination rate of 60% for HCW. The proposed target rate for 2020 is 90%.²⁹

Healthcare facilities have a significant role in increasing the rates of influenza vaccination among HCW. By engaging in education campaigns, obtaining signed declinations from employees who refuse the vaccine, and offering the vaccine free of charge on site, hospitals can dramatically increase vaccination rates. These efforts are recommended by the CDC for hospitals to increase their rates.³⁰ Sample vaccine declination forms for employees that were

²² Salgado, C. "Preventing Nosocomial Influenza by Improving the Vaccine Acceptance Rate of Clinicians."

²³ Carman, W et al. "Effects of influenza vaccination of healthcare workers on mortality of elderly people in long-term care: a randomized trial." *Lancet* 355 (2000): 93-97
<[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(99\)05190-9/fulltext#article_upsell](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(99)05190-9/fulltext#article_upsell)>

²⁴ Talbot, et al. "Revised SHEA [Society for Healthcare Epidemiology of America] Position Paper: Influenza Vaccination of Healthcare Personnel." *Infection Control and Hospital Epidemiology*, Vol. 31, No. 10, October 2010. <http://www.journals.uchicago.edu/doi/pdf/10.1086/656558>

²⁵ King.

²⁶ Greene, LR et al. "APIC position paper: Influenza Immunization of Healthcare Personnel" 2008 APIC Public Policy Committee.

²⁷ Hoffman, F et al. "Influenza Vaccination of Healthcare Workers: a Literature Review of Attitudes and Beliefs." *Infection* 34 (2006): 142-147. <<http://www.hhs.gov/ophs/programs/initiatives/vacctoolkit/hoffman.pdf>>.

²⁸ Talbot p. 883.

²⁹ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009" May 27, 2010. Slide 4.

³⁰ Pearson. See "Summary Recommendations"

distributed by the Department of Public Health require employees to acknowledge detailed risks of flu mortality and transmission as well as the safety of the vaccine.³¹

California Healthcare Worker Flu Vaccination Rates

California's influenza vaccination and reporting requirements for hospitals are written in the Health and Safety Code and were established by SB 739 of 2006. General acute care hospitals were required to make influenza vaccinations available for free to employees by June 1, 2007 and report their rates starting in January of 2008. The Department made data submission for the 2007-2008 flu season voluntary and required hospitals to submit vaccination data for the 2008-2009 season. The law requires the Department to publicly report the rates "no later than six months after receiving the data."³² The data was to be reported to CDPH by August 30, 2009, and should have been made public by March 2010.³³

CDPH has not yet released the data publicly. Department staff claims that hospitals may have misinterpreted reporting instructions. Officials at the Department were also hesitant to publish the data because of the possibility that some of the data may have been lost, after contacting some non-reporting hospitals that maintained they had submitted data. Department staff strongly recommended publishing only aggregate, rather than hospital-specific data for the 2008-2009 season.^{34, 35}

The Department states that there was confusion among hospitals about which HCW should be included in reports. For the 2007-2008 season, hospitals were instructed to include all employees in their report, regardless of whether they had direct patient contact.³⁶ An additional reporting measure was implemented during the 2008-2009 season which tried to capture vaccination rates for HCW who are not employed directly by a hospital but provide care within its facility.³⁷ This includes physicians who are "licensed independent practitioners," some nurses, and other contracted staff. The Department maintains that these reporting requirements were misinterpreted by some hospitals.³⁸

³¹ CDPH All Facilities Letter 08-17. "New Regulatory Requirements for Compliance with Senate Bill 739 – Reporting of Influenza Vaccination/Declination of Employees and Healthcare Personnel" August 29, 2008. <<http://www.cdph.ca.gov/certlic/facilities/Documents/LNC-AFL-08-17.pdf>> See Attachments B and H.

³² CDPH AFL 08-17, SB 739.

³³ HAI-AC Committee Meeting, August 30, 2010.

³⁴ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009"

³⁵ CDPH presentation "Facility-Specific Employee Influenza Vaccination Data for 2008-09: Options and Considerations for Public Postings"

<http://www.cdph.ca.gov/services/boards/Documents/Options_for_Influenza_Reporting.pptm>. Slide 17.

³⁶ CDPH AFL 08-17.

³⁷ CDPH AFL 08-17.

³⁸ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009" Slide 22.; Influenza Vaccination Subcommittee, HAI-AC. "Public Reporting of Employee and Non-Employee

Another potential source of confusion identified by the Department was how to count healthcare workers who were vaccinated at locations other than their workplace, such as at their personal doctor's office.³⁹ However, the reporting forms provided to hospitals for the 2007-2008 period clearly noted that these HCW should be counted as vaccinated.⁴⁰

To add to the data problems, the Department allowed hospitals to use several different forms for reporting, creating issues with standardized data. CDPH also failed to require each hospital to substantiate the accuracy of the data.^{41, 42}

Meeting minutes and Department correspondence show that there was great care employed in creating the reporting instructions to prevent confusion. The state Healthcare Associated Infections-Advisory Committee (HAI-AC) completed and approved CDPH's recommendations on this reporting process in May of 2008, and the Department released these recommendations to hospitals in June and again in August, in advance of the 2008-2009 influenza season.^{43, 44, 45} Hospitals were provided with a detailed description of the new category of personnel they were required to report: "healthcare personnel not included in the facility's roster of employees AND who have frequent patient contact," with healthcare personnel defined as including but not limited to "physicians, nurses, nursing assistants, therapists, technicians, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the healthcare facility, and persons (e.g., clerical, dietary, housekeeping, maintenance, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from [healthcare personnel] HCP."⁴⁶

Minutes of the HAI-AC influenza vaccination subcommittee show that the implementation of this measure was discussed and planning began as early as December of 2007.⁴⁷ Hospital representatives on the committee participated in the planning and approval for the reporting process and provided input on designing the instructions. Furthermore, under the 2006 law, California hospitals are required to prepare annual reports and strategic plans on

Healthcare Personnel Influenza Vaccination/Informed Declination Rates." July 7, 2010. <<http://www.cdph.ca.gov/services/boards/Documents/InfluenzaSC07-08-2010a.ppt>> , Slide 4.

³⁹ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009" Slide 25; Influenza Vaccination Subcommittee, Slide 4.

⁴⁰ CDPH AFL 08-17.

⁴¹ CDPH presentation "Influenza Vaccination in Employees, California General Acute Care Hospitals 2008-2009" Slide 24.

⁴² CDPH cover letter for Consumers Union PRA results. March 26, 2010

⁴³ Healthcare Associated Infections-Advisory Committee. Recommendations of the Influenza Subcommittee. May 29, 2009. <http://www.cdph.ca.gov/services/boards/Pages/HAIAC05_29_08.aspx>

⁴⁴ CDPH. June 4, 2008. "Upcoming Requirements for Reporting of Influenza Vaccination/Declination of Healthcare Personnel." <http://www.cdph.ca.gov/services/boards/Documents/FluPlanning06_08.pdf>

⁴⁵ CDPH AFL 08-17

⁴⁶ CDPH AFL 08-17.

⁴⁷ CDPH HAI-AC Healthcare Workers Influenza Vaccination Working Group. December 10, 2007 Conference Call Minutes <<http://www.cdph.ca.gov/services/boards/Documents/flusubMM121007.pdf>> Page 3.

infection surveillance and prevention programs that include evaluations of employee health and occupational health measure implementation, which should have laid the groundwork for successful reporting.⁴⁸

By deciding not to publish the hospital-specific data it received for 2008-2009, the Department is establishing a pattern of missing mandated deadlines for public, hospital-specific infection data. It is also missing another chance to establish benchmark influenza vaccination rates for hospitals to improve upon in successive years. Department staff stated in January 2009 that they had received data for the 2007-2008 season and expected to post it within the required six month period, but this data was never published.⁴⁹ On October 30, 2010, an influenza subcommittee presentation appears to recommend continued publishing of aggregate vaccination data on “employees only” for the 2009-2010 flu season, but it is unclear when that information will be made public.⁵⁰

California Health and Safety Code

1288.7. By July 1, 2007, the Department shall require that each general acute care hospital, in accordance with the Centers for Disease Control guidelines, take all of the following actions:

(a) Annually offer onsite influenza vaccinations, if available, to all hospital employees at no cost to the employee. Each general acute care hospital shall require its employees to be vaccinated, or if the employee elects not to be vaccinated, to declare in writing that he or she has declined the vaccination.

1288.8 (b) On and after January 1, 2008, each general acute care hospital shall implement and annually report to the Department on its implementation of infection surveillance and infection prevention process measures that have been recommended by the federal Centers for Disease Control and Prevention Healthcare Infection Control Practices Advisory Committee, as suitable for a mandatory public reporting program. Initially, these process measures shall include the CDC guidelines for central line insertion practices, surgical antimicrobial prophylaxis, and influenza vaccination of patients and healthcare personnel. In consultation with the advisory committee, the Department shall make this information public no later than six months after receiving the data.

⁴⁸ SB 739. Speier. 2006.

⁴⁹ HAI-AC Meeting Minutes. January 12, 2009.

<<http://www.cdph.ca.gov/services/boards/Documents/HAIACMM01-12-09.pdf>> Page 5.

⁵⁰ Influenza Vaccination Subcommittee, HAI-AC. “Public Reporting of Employee and Non-Employee Healthcare Personnel Influenza Vaccination/Informed Declination Rates.” July 7, 2010. <<http://www.cdph.ca.gov/services/boards/Documents/InfluenzaSC07-08-2010a.ppt>>

Public Records Request Results

Consumers Union received data on influenza vaccination of healthcare workers following a request to the CDPH under the Public Records Act.⁵¹ The Department only provided data for the 2008-2009 influenza season, which it defines as running from September 1 through March 31.⁵² The rates reported by California hospitals are similar to U.S. rates reported in the scientific literature on influenza vaccination of HCW, which range from less than 5% to over 80%.⁵³ In other words, there is great variation in vaccination rates among California hospitals. We found that the lowest vaccination rate reported by a California hospital was 3.4% and the highest rate was 93.2%.

The Department advised that the data had not been corrected by hospitals or the CDPH before it was provided to Consumers Union even though almost eight months had passed since hospitals were required to report it. CDPH indicated that it was contacting hospitals that failed to report in order to obtain further information for the 2008-2009 flu season, but advised Consumers Union that we would have to submit an additional Public Records Request to obtain any updated data they may have received since the date of our initial request, which was submitted after the deadline for hospitals to report.⁵⁴

While we understand the limitations of this data, Consumers Union believes that hospitals were provided with detailed guidance to avoid confusion and were given ample time to correct potential errors. The public has a right to know if a hospital is serious about protecting patients from getting the flu from its healthcare workers. Additionally, the only way to assess whether healthcare worker immunization rates are improving each season is by publishing the hospital-specific rates.

⁵¹ Public Records Act Request from Consumers Union, February 16, 2010, <<http://www.safepatientproject.org/pdf/CU%20February%2016%202010%20PRA.pdf>>

⁵² CDPH AFL 08-17.

⁵³ Hoffman, F et al. "Influenza Vaccination of Healthcare Workers: a Literature Review of Attitudes and Beliefs." *Infection* 24 (2006): 142-147.

⁵⁴ CDPH cover letter for Consumers Union PRA results. March 26, 2010
CDPH call with Consumers Union re. PRA results. July 21, 2010.

Consumers Union Recommendations

The Department of Public Health should:

- Publish vaccination rates of each California hospital for the 2008-2009 flu season and should publish rates for the 2009-2010 flu season, and all future seasons, within the statutory timelines.
- Require the CEO of each hospital to sign an affidavit stating the data submitted is accurate.
- Require all hospitals to report using standardized forms and definitions and should check the accuracy of the data through random reviews of hospital immunization records.